chiefly occupied his leisure. In 1860 he crossed the Andes, reaching the headwaters of the Amazons, and descending that river to Pará, in Brazil, where he made his first long halt. Few Englishmen had at that time made a similar journey, which appears to have been fraught with difficulty.

After this journey Mr. Saunders returned to England, and devoted himself to the study of ornithology in real earnest. In South America he had acquired an intimate acquaintance with the Spanish language, so that in the numerous visits he paid to Spain between the years 1863 and 1870 he found himself thoroughly at home. Owing to these frequent visits he became a recognised authority on the ornithology of the Spanish peninsula, and in the year 1869 he published in the *Ibis* the first of a series of important papers on that subject.

To those members of the British public interested in birds, Mr. Saunders is, however, much better known as the editor of the third and fourth volumes of the fourth (and last) edition of "Yarrell's British Birds," the late Prof. Newton, who had edited the two earlier volumes, having found himself unequal to the task of continuing the work, at the rate of issue deemed necessary by the publishers. This work is alone a monument to the extensive knowledge and unflagging industry of Mr. Saunders. In addition to the conciseness and yet fulness of his descriptions, the text of these two volumes is noteworthy on account of the minuteness of detail with regard to the geographical distribution of the various species. The first part of vol. iii. appeared in 1883, and the last volume was completed in 1885.

This, however, was by no means the only work on British birds by Mr. Saunders. In 1887 he published a list of the birds of our islands; and in 1888–9 "An Illustrated Manual of British Birds," which originally appeared in parts, and of which a second edition was issued during the years 1897–9. Terns, gulls, and skuas were a group of birds in which Mr. Saunders was specially interested, and he was engaged by the Trustees of the British Museum to write the volume on this group (Gaviæ) for the famous series of "Catalogues," of which this volume is the twenty-fifth. It was published in 1896. He was one of the contributors to the "bird volume" of the scientific results of the cruise of the *Challenger*, which appeared in 1881, and likewise wrote the article Birds in the "Antarctic Manual." He was also joint-author of the "Birds of Lancashire," and had, indeed, an almost unrivalled knowledge of the county distribution of British birds. His papers in the *Ibis*, in addition to those on the birds of Spain, are numerous, and, needless to say, valuable.

At an early stage in his career Mr. Saunders became a member of the British Ornithologists' Union, at the meetings of which he was a regular attendant, while he also took a large share in the management of that body. He was a Fellow of the Linnean, the Zoological, and the Royal Geographical Societies, and served on the council of each, as well as contributing largely to the publications of the second named. The Society for the Protection of Birds also claimed his interest. For several years (1880–5) Mr. Saunders was secretary of Section D of the British Association; he was also a member of the American Ornithologists' Union, and on the foreign list of the Société Zoologique de France and of several other Continental scientific bodies. In addition to ornithology, Mr. Saunders also took an active interest in geographical research, especially that connected with the exploration of both polar regions. His death will be felt as a personal loss by a large circle of scientific friends, both in this country and abroad.

R. L.

NOTES.

The first Press messages by wireless telegraphy were transmitted by the Marconi system across the Atlantic Ocean, between Ireland and Cape Breton, on October 17. Several congratulatory messages were exchanged between the two continents. The Governor-General of Canada dispatched a message from Ottawa congratulating the King "on the establishment of a fresh link between Canada and the Motherland," to which His Majesty replied on the following day by the same method of communication:—"His Majesty the King to Earl Grey, London, October 18.—I thank you for your telegram. I am delighted that wireless Transatlantic telegraphy should unite the bonds between Canada and the Mother Country so closely.—Edward R." The Irish station is situated on a headland facing the Atlantic, about four miles from Clifden, in Galway, and is the largest wireless installation in the United Kingdom. A number of tall masts, arranged in a line facing seawards, contain a network of wires on which messages are received and dispatched. The operators have a telephonic apparatus with a sensitive sounder attached to their ears, and it is their trained sense of hearing and distinguishing the Morse signals transmitted that enables them to detect the signals. It is stated that signals are sent and received simultaneously, and that a speed of about thirty words per minute has already been attained. Full particulars of the modifications in the apparatus and plant which have made the success of last week possible will doubtless be forthcoming in due course. Mr. Marconi and those at work with him are to be congratulated upon their triumph over practical difficulties, and men of science have reason for satisfaction in this remarkable development of means of communication by means of ether waves. The Marconi Company state that any delays in the transmission of messages by their system between North America and the United Kingdom are attributable entirely to delays on the land lines. The company claims that with a private wire from its station at Glace Bay to Montreal, and from the Irish station to London, the service between London and Montreal will immediately compare favourably with the cable service in point of speed.

The Faraday lecture was delivered by Prof. Emil Fischer, professor of chemistry in the University of Berlin, at a meeting of the Chemical Society held on October 18 at the Royal Institution. Sir William Ramsay, K.C.B., president of the society, was in the chair. An abridgment of the lecture appears in another part of the present issue. At the conclusion of his discourse a medal was handed to Prof. Fischer by Sir William Ramsay as a mark of appreciation by the Chemical Society of his scientific work. Sir Henry Roscoe proposed a vote of thanks to the lecturer, and remarked that the great interest of the lecture is due, not only to the fact that Prof. Fischer is a master of his subject, but also because the application of synthetic chemistry to biology is a subject that at the present time exceeds in interest and importance any other branch of the science. In seconding the vote, Sir James Dewar mentioned that the centenary of the isolation of potassium and sodium by Davy fell on the day following that of the lecture.

The death is announced of Prof. A. Fürtwangler, professor of classical archæology in the University of Munich, and a prolific writer on archæological subjects.

The council of the Royal Meteorological Society has awarded the Symons gold medal for 1908 to M. L.

Teisserenc de Bort, of Paris, in recognition of the services which he has rendered to the science of meteorology. The medal was established in memory of the late George James Symons, F.R.S., the founder of the British Rainfall Organisation, and is awarded biennially. The presentation will take place at the annual general meeting of the society on January 15, 1908.

At the sixth annual meeting of the Northern Scientific Club, held at Newcastle on October 17, Sir W. H. White was elected president, and gave an address upon the application of the gyroscope for steadying ships. He showed a working model of Dr. Schlick's apparatus, which, he said, when applied to cross-Channel boats and coasting passenger steamers, would so prevent the rolling of these vessels as to allow persons troubled with sea-sickness to travel on the sea in comfort.

A message was received in New York on October 9 from Dr. Frederick A. Cook, the explorer. It was dated August 26, from Etah, and ran as follows:—"I have hit upon a new route to the North Pole, and will stay to try it. By way of Buchanan Bay and Ellesmere Land, and northward through Nansen Strait over the Polar Sea, seems to me to be a very good route. There will be game to the eighty-second degree, and here are natives and dogs for the task." Dr. Cook's expedition is provisioned for two years, and is wintering thirty miles further north than Commander Peary did two years ago.

The experts of the U.S. Forestry Service, after a fortnight's work on the ground principally affected, are still in the dark as to the origin of the blight that has attacked the white pine of New England during the summer. At Brunswick, Maine, it is feared that the beautiful Bowdoin pines, of which Hawthorne and Longfellow wrote, will soon be a thing of the past. The blighted trees are recognised by the fact that the tips of the needles of this year's growth have turned a peculiar reddish-brown colour, so that the trees look as though they had been scorched. The national Government has established several sample plots, not only at Brunswick, but also at Peterboro, New Hampshire, where a scientific study of the problem is to be carried on.

The Philosophical Institute of Canterbury, New Zealand, is making arrangements for an expedition to some southern islands included in the colony's boundaries. The expedition will be under the leadership of the Hon. R. McNab, Minister of Lands and Minister for Agriculture, who is interested in the history of the islands, and has written an interesting work dealing with the old sealing and whaling days in the islands and the southern part of the mainland. The expedition will be under the auspices of the Government, and will be taken to the islands in one of the Government's steamers. It will leave New Zealand about the end of November or the beginning of December, and will visit the Auckland Islands and Campbell Islands. About twenty New Zealand men of science will take part in the undertaking. They will be divided into two parties, one going to each group. Work will be done in regard to terrestrial magnetism, zoology, geology, and botany, and reports will be prepared dealing with the results of the investigations.

The jubilee of the East Kent Scientific Society was celebrated on October 16 by a conversazione held at the Simon Langton School, Canterbury. Biological, chemical, and physical exhibits were on view, and several interesting demonstrations were provided. The society numbers eighty-six members.

Reuter's correspondent at St. Petersburg states that reports have reached there of an earthquake in Central Asia. On October 21, between 9 a.m. and 10 a.m., a strong but gradually diminishing shock of earthquake was recorded at Katta-kurgan. Other advices state that an undulatory earthquake occurred on October 21 at Samarkand, lasting from 8.45 to 10.30, and causing cracks in many buildings. The dome of one mosque and the minaret of another collapsed.

We learn from the *Agricultural News* of the West Indies that Mr. W. R. Buttenshaw died suddenly in Calcutta on September 9, at thirty years of age. Mr. Buttenshaw, who was a graduate of the University of Aberdeen, entered the service of the Imperial Department of Agriculture for the West Indies as lecturer in agricultural science at Jamaica in 1899, and was appointed scientific assistant in charge of publications at the head office at Barbados in 1903. He left Barbados in May last to take up an appointment as botanist in the Indian Agricultural Service.

Cardiff is now to have a seismograph. Mainly through the instrumentality of Principal E. H. Griffiths, F.R.S., the local Naturalists' Society took the matter up, and approached the City Council with the offer of a seismograph and several other instruments to complete the set belonging to the corporation if only the latter would suitably house and maintain the same. The city fathers, after some demur on the score of economy, have now unanimously agreed to the proposal. An excellent site has been found for the seismograph on Penylan Hill alongside the public observatory, where will also be installed all the instruments necessary for a complete meteorological outfit. This announcement was made amidst applause at the annual meeting of the naturalists on Thursday evening, October 17, by the retiring president, Prof. Haycraft.

The Harveian oration was delivered by Dr. F. Taylor at the Royal College of Physicians on October 18. In the course of his address, Dr. Taylor remarked that Harvey's injunction to search and study out the secrets of nature by way of experiment should be addressed to the lay public, not, indeed, that they may experiment themselves, but that they may promote and forward such experimentation, or at least not hinder and obstruct it. Consideration of the value of experiment and research leads to the reflection how enormous has been the progress, on the one hand, made in medicine in the last few years, and how large, on the other, is our ignorance of natural phenomena in relation to disease and its treatment or control. Dr. Taylor referred to the work of Prof. E. Starling, to whom the Baly medal for the present year has been awarded, on the chemical relations of the functions of the body, as being particularly in accordance with the spirit of Harvey. Two advances which have had important results are the improvements in surgical practice which, initiated by Lord Lister, have led to the present theory and practice of asepsis in surgery, and the advances on the therapeutical side which are intimately connected with the subject of prevention and immunity, and the treatment of disease by antitoxins and the later opsonic methods. The field for research is enormous, the necessity for research patent, and even if the number of workers who can conduct research on the highest lines is limited, whether on social, financial, or moral considerations, there can be no doubt that the medical profession as a body will continue actively to support the maxim contained in Harvey's injunction to search out the secrets of nature by experiment.

FROM Tuesday to Saturday of this week boys of all ages have a delightful opportunity of seeing well-made models of engines, boats, electrical and other devices, and tools used in making them, at the Royal Horticultural Hall. Besides seeing the models at rest or at work, they are able to attend lectures on some of those attractive features in mechanics, physics, or chemistry that made the Polytechnic such a favourite resort in the old days. The *Model Engineer* is to be congratulated on the success of its first exhibition, or at any rate on what ought to be a success, the only misfortune being that, as the younger boys are at school now and the older boys are at work, many who would have attended with delight are perforce out of reach. Our interest in an exhibition such as this is more with its educational aspect than in general with the exhibits themselves. A boy with a mechanical or scientific turn obtains exactly the kind of encouragement which is wanted; his vague ideas as to making something, however fantastic (before the days of bicycles he generally hankered after making a velocipede), are corrected by seeing pleasing things that will really work of every kind of difficulty, from the simplest to the most elaborate, and, what is more important, he learns precision and how to read a drawing, for the instructions given at the exhibition and in the *Model Engineer* are accompanied by proper scale elevations and sections that would do credit to an engineer's office. The boy of the present day has a great advantage over his predecessor owing to the great development and moderate price of small precision tools. These are to be seen in their usual variety; but it is a little sad to notice under the same roof beautiful small precision lathes, with hollow mandrels and draw-in chucks, hailing often from Germany, and old-fashioned designs of cheap lathes with short and solid mandrels. Of course money is the difficulty, and the boy is tempted by the greater capacity of the gap lathe. Perhaps as an educational instrument it has its value. Among the pleasing subjects of lectures is the gyroscope, but, judging from the syllabus, the lecturer has missed the opportunity which the now popular "diabolo" would have given him if his dexterity is equal to his knowledge of demonstrating the laws of precession. We can only repeat our regret that such a treat should not have been arranged for the holidays.

C V Boys

THE *Times* of October 15 contains a further communication from Dr. Stein announcing the results of his work in north-western China during the last few months. Leaving the Lop-nor region, where at Miran, he had made discoveries proving that in the second century A.D. the Indian kingdom in Turkestan, of which he had previously found such important remains at Niya, between Khotan and Cherchen, extended eastwards almost to the borders of China, Dr. Stein proceeded along the ancient trade-route across the desert of Gobi towards the oasis of Sha-chau, still, as of old, the westernmost outpost of Chinese population and speech. This route has been avoided in modern times until now, on account of its difficulties. Dr. Sven Hedin did not essay it, and it had not been crossed for many years until, not long ago, two British officers from India performed the journey. Their feat was chronicled in the Journal of the Royal Geographical Society, but is not mentioned by Dr. Stein in his letter. The discoverer has found a very interesting relic of ancient Chinese authority in this region in the shape of a previously unknown "great wall" of defence, erected in the early days of Chinese conquest by the Han emperor Wu-ti, at the close of the second century B.C. Dr. Stein traced its course for 140 miles, and found many interesting remains of its original builders and later garrisons in the shape of Chinese records on wood, chiefly referring to matters of military administration, besides numberless miscellaneous antiques, which had been perfectly preserved by the dry climate and soil. Buddhist antiquities of a thousand years later have also been found on sites to the south of this wall, and with these researches Dr. Stein is still occupied.

H R Hall

AN informal conference of representatives of museums, with members of the Museums' Association and other persons interested, was held at Salford, on October 18, by the invitation of the Museums and Libraries Committee of the Salford Corporation, who entertained the visitors. The meeting was well attended, the museums of Liverpool, Manchester, Leeds, Hull, Leicester, Bolton, Chester, and Warrington being represented among others. The afternoon was spent in the inspection of the Peel Park Museum and the recently opened natural history branch at Buile Hill Park, and Mr. B. H. Mullen, curator, afterwards gave a brief account of the recent extensive changes and developments carried out in the Salford museums. Mr. G. A. Dunlop, Warrington Museum, in a paper on the preparation of botanical specimens for exhibition, described in detail processes of drying flowering plants in silver-sand and boxwood sawdust, exhibiting samples of successful results with the latter medium, in which leaves and delicate floral structures were perfectly preserved. The forms were practically permanent; the colour of specimens exposed to the light might be expected to last about two years. An effective dry method of preserving succulent plants was, however, still a desideratum. Mr. H. Murray, Manchester Museum, followed with notes on wet methods of preserving plants for exhibition. Mr. E. E. Lowe, Leicester Museum, read a paper entitled "What should be the Curator's Ideal?" in which he offered evidence of the need for an all-embracing scheme or classification, as of an ideal museum, which should cover the whole field of museum work, and from which curators might select, and by which they might verify and coordinate their work in such sections of the whole as they might severally find it practicable to include in their programmes. Mr. Lowe submitted an outline of some portions of such a scheme, and was encouraged to proceed with the project.

THE first meeting of the new session of the Royal Geographical Society will be held on November 11, when Mr. Mackintosh Bell, director-general of the New Zealand Survey, will give a paper on the Great Douglas Glacier and its neighbourhood. Arrangements have also been made for papers by Dr. Hunter Workman, on the exploration of the Nun Kun mountain group, in the Himalayas, and its glaciers; Dr. Vaughan Cornish, on the Jamaica earthquake; Mr. A. H. Harrison, on his search for an Arctic continent; and Dr. Tempest Anderson, on his visit to the volcanoes of Guatemala and St. Vincent. Among other papers provisionally arranged are the following:—the Duc d'Orléans, on his exploration in and around Novaya Zemlya; the Count de Lesdain, on his journey from Peking to Darjiling through Central Asia and Tibet; Mr. Laurence Gomme, on the story of London maps; Dr. T. G. Longstaff, on the Trisul district of the Himalayas; Mr. A. W. Paul, on Bhutan; Dr. W. S. Bruce, on his recent expedition to Prince Charles Foreland, Spitsbergen; and Dr. Johnston Lavis, on the influence of volcanic action on some features of the earth's crust. A series of lectures on the geographical conditions which affect the development of the British Empire is being arranged for, one or two of the lectures to be given each session; the lectures at present decided upon are:—on the British Islands, by Mr. H. J. Mackinder, and on Australia, by Prof. J. W. Gregory, F.R.S. Beginning on Thursday, January 23, and continued weekly, a course of six lectures will be given by Dr. H. R. Mill on the geographical distribution of rainfall in the British Islands.

From Mr. John Wheldon we have received a copy of a catalogue of ornithological literature, comprising nearly 1000 books and papers.

A paper by Messrs. W. K. Brook and S. Rittenhouse on the life-history and development of the hydroid *Turritopsis nutricula*, in which both the hydroid-stock and the free-swimming medusas are described, is published in the Proceedings of the Boston (U.S.A.) Natural History Society, vol. xxxiii., No. 8.

In the list of additions to the Zoological Society's menagerie in the Regent's Park, attention may be directed to a specimen of Phillips's dik-dik antelope from Somaliland, the first of its kind ever exhibited in the gardens. A true zebra from Cape Colony is likewise an important addition to the collection.

The council of the Ealing Scientific and Microscopical Society deplores, in its report for the past year, the lack of interest displayed by local residents in matters scientific, and the consequent want of expansion in the membership roll of the society. Unless at least twenty new members are enrolled during the coming year, the society's expenses must be cut down. Among the reports of addresses delivered during the year, attention may be directed to one on the continuity of the germ-plasm, in which an abstruse subject is explained in a remarkably clear manner.

It has long been known that the North American cat-fishes of the genera Noturus and Schilbeodes can inflict painful wounds with the spines of their pectoral fins, but some difference of opinion has hitherto prevailed whether a sac opening by a pore in the axillary region of these fishes is a true poison-gland. In the September number of the *American Naturalist* Mr. H. D. Reed, after careful examination of several species of these cat-fishes, states that the pore, which is the aperture of a gland, is present in all, and that in at least one species the secretions of the gland are poisonous. It has also been found that in species in which the spines are not strongly serrated, glands of the same type are developed on the pectoral and dorsal fin-spines. In these species, in which they attain their highest development, the glands are structurally similar to those of the weaver-fishes.

Among a number of interesting articles in the October issue of *Science Progress*, special reference may be made to one by Mr. F. V. Theobald on the economic relations of birds to agriculture, horticulture, and forestry. Despite the enormous amount of literature on British ornithology, the author is of opinion that our present information concerning the majority of the species is insufficient to admit of a definite pronouncement as to their utility or harmfulness, and that it is consequently necessary to study their food in a much more systematic manner than has hitherto been attempted. Some birds Mr. Theobald does not hesitate to condemn to destruction, among these being the black-cap, blackbird, and sparrow-hawk. Attention may also be directed to an article by Dr. A. Dendy on the pineal gland. Although its wonderful developmental history is fairly well known, we are still ignorant of the function of this organ. To remedy this we require a series of investigations into the physiology of the pineal organs, both in those animals in which they still exist as a sense-organ, and in those in which the epiphysis cerebri has assumed the character of a ductless gland.

The Bulletin of the Johns Hopkins Hospital for September (xviii., No. 198) is longer than usual, and contains a number of important papers on pathological subjects. Prof. W. G. MacCallum gives a short outline of an experimental course in pathological physiology which the students of the Johns Hopkins Hospital have the privilege of attending.

From Messrs. G. W. Bacon and Co. we have received a set of the first part of their "Photographic Nature Drawing Cards," reproducing illustrations of leaves. The size of the prints averages about 5 inches by 3 inches, and on each a single leaf is figured. They are nicely printed, and serve to indicate general shape, outline, and veining, but obviously the advantage lies with natural specimens.

A catalogue recently received of Leitz microscopes contains several new designs and fittings. A novel and improved form of fine adjustment, providing endless movement by means of a cam, is supplied with the better stands; being fitted to the connecting piece between the frame and the tube-holder, it is possible to curve the frame so as to give accommodation for large objects on the stage. In the so-called museum microscope there is a circular drum on which a dozen preparations can be fixed that rotates under the objective. Special features are combined in the mineralogical microscopes, and an opaque illuminator for fitting on the end of the tube has been designed. A pamphlet describing Edinger's drawing and projection apparatus has also been published.

The July number of the *Philippine Journal of Science*, vol. ii., No. 4 of the botanical series, is assigned to the identification of specimens collected by Mr. E. D. Merrill and others on Mt. Halcon, Mindoro. With regard to new plants described by Mr. Merrill, the most notable is a species of Centrolepis providing the first record for the order Centrolepideæ in the Philippines. The order is typically Australian, as four out of six genera are entirely confined to Australasia, and out of twenty species of Centrolepis this and one other only occur outside Australia. Several other plants of the collection bear out the same affinity; *Dianella caerulea, Halorrhagis halconensis*, and *Cladium latifolium* afford good examples. Two new genera are proposed, Halconia under the order Tiliaceæ, and Mearnsia under the order Myrtaceæ. A small parcel of mosses collected on the same expedition was referred to Dr. V. F. Brotherus. His determinations and those of the orchids consigned to Mr. O. Ames are also published.

Dr. Virginia Ridsdale has published a thesis (Lord Baltimore Press, 1906) dealing with the arrangement of the real branches of plane algebraic curves. The Harnack and Hilbert processes of small variation from specially degenerate curves are applied to curves with the maximum number of branches, and the various possible arrangements of internal and external ovals are discussed. The author concludes that the theorem with which the paper professes to deal can be stated in several alternative forms. This theorem relates to the greatest and least numbers of ovals for a curve of given degree.

The Weekly Weather Report of the Meteorological Office for the week ending Saturday, October 19, states that the rainfall was more than the mean in all districts except Ireland N. In nearly all parts of the kingdom, except Scotland N. and Ireland S., the excess was very large. Several parts of the country recorded falls of much more than an inch within twenty-four hours, and some places more than 2 inches. Most of the heavy falls occurred either on October 15 or 16. At Lincoln (about 1½ miles from the centre of the city) as much as 3·50 inches were recorded on October 16, and at Leith 2·61 inches on October 15, while over a large area of Great Britain measurements of between 1 inch and 2 inches were registered. The largest aggregates for the week were 4·92 inches at Bournemouth and 4·62 inches at Portland Bill.

THE report of the Government Meteorological Department on rainfall registration in Mysore for 1906 shows very clearly, both statistically and graphically, that the district average for the year was somewhat above the mean of the past thirty-seven years in all parts except in Shimoga and Kadur, but was, on the whole not sufficient to make up for the deficiency of the two previous years. The greatest rain in twenty-four hours was, as usual, at Augumbe (Shimoga), where 15 inches fell on July 21 and 11¼ inches the following day. The director, Mr. J. Cook, states that though the interest of the observers in their work has greatly increased in recent years, many of the gauges are still badly exposed.

AN interesting pamphlet by Mr. D. W. Horner, entitled "Observing and Forecasting the Weather: Meteorology without Instruments," has recently been published by Messrs. Witherby and Co., 326 High Holborn (post free, 7*d*.). On reading this booklet we were impressed by the fact that much useful work can be done by the public generally without expense, and with advantage to themselves, by recording their observations as recommended. The greater part of the pamphlet deals with the importance of cloud observations, and the author points out how anyone possessing an ordinary photographic camera may obtain useful pictures of clouds and lightning flashes. To make the chapter on wind more complete, a table of the velocities corresponding to estimated force by Beaufort's scale is given; the equivalents were in general use until very recently, but have been slightly modified by a publication of the Meteorological Office (No. 180, 1906) bearing upon the subject. With reference to the supposed influence of the moon on the weather, the author states that there is "grave reason for doubt" that Sir W. Herschel compiled a table until recently published in almanacs; any doubt on the question was removed by Sir J. Herschel's denial in *Good Words*, 1864.

MESSRS. SANDERS AND CROWHURST have issued a new series of lantern slides from Mr. W. Farren's photographs illustrating wild bird life, taken from nature. The slides include many instructive pictures of birds and their habits. Enlargements of the photographs are also issued.

A SECOND edition, being the third impression, of Dr. R. Wallace Stewart's "Higher Text-book of Magnetism and Electricity" has been published by Mr. W. B. Clive. This edition contains an additional chapter on the electron theory of matter and radio-activity, written by Mr. J. Satterly.

A SECOND edition, which has been revised and enlarged, of Dr. Ernst Cohen's "Vorträge für Arzte über physikalische Chemie" has been published by Mr. W. Engelmann, of Leipzig. An authorised translation of the first edition, by Mr. M. H. Fischer, was published by Messrs. Henry Holt and Co., of New York, in 1903, and the English version was reviewed in NATURE of July 16, 1903 (vol. lxviii., p. 245).

FROM Messrs. Philip Harris and Co., Ltd., of Birmingham, we have received a specimen of their recently introduced students' clinometer and compass. It consists of a silvered dial of some 2½ inches diameter divided into degrees in the two uppermost quadrants, and provided with a pair of sights of the usual folding pattern. About this dial revolves a metal collar carrying a spirit level, to which is affixed an index point indicating the angular elevation of the object under measurement. No fine degree of accuracy can be expected, of course, from a dial of so small a radius, but, with the accompanying compass, the instrument should be found extremely useful in educational work, such as is involved in the practical study of physical geography, inasmuch as it will familiarise the student with the principles of the angular measurements of elevation and azimuth. The clinometer would be simpler to use, it appears to us, and would give greater accuracy, if some method were devised of attaching the collar carrying the level and index to the stand, thereby leaving the sights and dial to move independently of the latter, which could then be accurately levelled at the commencement of the observation and afterwards left undisturbed.

OUR ASTRONOMICAL COLUMN.

MELLISH'S COMET, 1907*e*.—A second telegram from the Kiel Centralstelle informs us that the comet discovered by Mr. Mellish at Madison on October 13 was observed by Prof. Hartwig at Bamberg on October 15. Its position at 17h. 0·4m. (Bamberg M.T.) was R.A.=8h. 26m. 13s., dec.=8° 45′ 16″ S., and its magnitude 9·5.

The following are a set of elements and an ephemeris calculated by Miss Lamson from places observed on October 15, 16, and 17, and communicated by Prof. Pickering to the Kiel Centralstelle (Circular No. 100):—

Elements.

T = 1907 September 12·47 (M.T. Greenwich).

$$\left.\begin{array}{l} \infty = 291^\circ\ 42' \\ \text{☊} = 55^\circ\ 32' \\ i = 118^\circ\ 53' \end{array}\right\} 1907{\cdot}0$$

$q = 0{\cdot}973$

Ephemeris 12h. (G.M.T.).

1907	α	δ	Brightness
		° ′	
October 19	8 14·1	−7 0	1·15
,, 23	7 57·7	−4 38	—
,, 27	7 36·0	−1 30	—
,, 31	7 6·8	+2 39	2·06

The brightness at time of discovery (mag.=9·0) is taken as unity. On October 27 the comet will be about halfway between γ (26) Monocerotis and Procyon, and on October 31 it will be some 2° north of δ (22) Monocerotis. On the latter date the comet will rise a little to the north of east at about 10.30 p.m.

A BRIGHT METEOR.—Mr. W. F. Denning informs us that a fine meteor = ♀ was seen by Miss Irene Warner of Horfield Common, near Bristol, on October 19 8h. 50m. It disappeared close to the star δ Aquarii, near the planet Saturn, and was directed from the north-east region of Cygnus, near α and ε. It was of a fiery yellow colour and formed quite a conspicuous object even in the presence of the nearly full moon.

THE SPECTRA OF SUN-SPOTS AND MIRA CETI.—In the September *Astrophysical Journal* (vol. xxvi., No. 2, p. 123) Father Cortie compares the spectra of Mira Ceti, taken at Stonyhurst during the maxima of 1897 and 1906, with the sun-spot spectrum, and infers therefrom that the temperature of the spot vapours is lower than that of the photo-